

CLAIMS amended under Article 19 of PCT

1. (Amended) A wiper pivot unit comprising:
- a pivot shaft having a proximal end and a distal end to which a wiper arm is fixed;
- a pivot holder fixed to a vehicle body;
- a bearing portion formed in the pivot holder and rotatably supporting the pivot shaft; and
- a locking member for restricting axial movement of the pivot shaft with respect to the bearing portion, wherein the pivot shaft includes a small-diameter section formed over a predetermined length from the distal end side, and a large-diameter section, which has a diameter larger than that of the small-diameter section, formed on the proximal end side, the large-diameter section having an end portion in the proximity of the small-diameter section, wherein the locking member is engaged with a predetermined frictional force against an external surface at the end portion of the large-diameter section, wherein when a thrust load of a predetermined value or more is applied to the pivot shaft toward the proximal end, restriction of axial movement of the pivot shaft by the locking member is removed, the pivot shaft is moved with respect to the bearing portion, the locking member is moved to the small-diameter section, and the frictional force is reduced.
2. The wiper pivot unit according to claim 1, wherein the predetermined frictional force is a result of a constricting force of the locking member against the outer surface of the pivot shaft.
3. The wiper pivot unit according to claim 1, wherein

the small-diameter section protrudes entirely from the bearing portion and the large-diameter section is located in the bearing portion in the state where the locking member restricts axial movement of the pivot shaft with respect to the bearing portion.

4. The wiper pivot unit according to claim 1, wherein the small-diameter section has a constant diameter along the axis of the pivot shaft and protrudes from the bearing portion.

5. The wiper pivot unit according to claim 1, wherein the pivot shaft further has a fixing section for fixing the wiper arm at the distal end side than the small-diameter section, wherein the small-diameter section is formed over a predetermined length between the fixing section and the large-diameter section.

6. The wiper pivot unit according to claim 1, wherein the locking member includes a toothed washer having a plurality of locking pieces protruding inward, wherein tips of the locking pieces define a through hole, and the small-diameter section has a diameter smaller than the inside diameter of the through hole of the toothed washer before it is fitted to the pivot shaft.

7. The wiper pivot unit according to claim 1, wherein the pivot shaft has a tapered surface, which connects the large-diameter section and the small-diameter section.

8. The wiper pivot unit according to claim 5, wherein the fixing section has a tapered rotation preventing

portion having a knurled surface and a threaded portion formed on the distal end side of the rotation preventing portion.

5 9. The wiper pivot unit according to claim 1, wherein the locking member includes a ring-shaped toothed washer having a plurality of locking pieces protruding inward, the locking pieces defining a through hole, wherein the diameter of the small-diameter section, the diameter of the large-diameter section and the inside diameter of the through hole of the toothed washer before it is fitted to the pivot shaft are designed to produce a kinetic frictional force between the toothed washer and the small-diameter section of half as much as ^{zero?} or less than a maximum static friction to that occurs ^{which} when the toothed washer constricts the large-diameter section.

10 10. The wiper pivot unit according to claim 9, wherein the diameter of the small-diameter section, the diameter of the large-diameter section and the inside diameter of the through hole of the toothed washer before it is fitted to the large-diameter section are designed to produce a kinetic frictional force of zero when the toothed washer is shifted to the small-diameter section.

15 11. The wiper/pivot unit according to claim 1, wherein the locking member includes a toothed washer having a plurality of locking pieces protruding inward, wherein the washer has an unsevered ring shape.

20 12. (Amended) A wiper pivot unit comprising:
a pivot shaft having a proximal end and a distal end

to which a wiper arm is fixed;

a pivot holder fixed to a vehicle body;

a bearing portion formed in the pivot holder to support rotatably the pivot shaft; and

5 a locking member for restricting axial movement of the pivot shaft with respect to the bearing portion, wherein the pivot shaft includes a small-diameter section formed over a predetermined length from the distal end side, and a large-diameter section, which has a diameter larger than
10 that of the small-diameter section, formed on the proximal end side, the large-diameter section having an end portion in the proximity of the small-diameter section, wherein the locking member includes a toothed washer having a plurality of locking pieces protruding inward, tips of the locking
15 pieces defining a through hole, and the toothed washer is engaged with the outer surface at the end portion of the large-diameter section to constrict that portion with a predetermined constricting force, and wherein the diameter of the small-diameter section, the diameter of the large-
20 diameter section and the inside diameter of the toothed washer before it is fitted to the pivot shaft are designed to allow the toothed washer to give a kinetic frictional force of half as much as or less than a maximum static
25 friction to be exhibited when the restriction of axial movement of the pivot shaft is canceled to allow the pivot shaft to shift with respect to the bearing portion.

13. The wiper pivot unit according to claim 12, wherein the small-diameter section protrudes entirely from the bearing portion and the large-diameter section is
30 located in the bearing portion in the state where the locking member restricts axial movement of the pivot shaft.

14. The wiper pivot unit according to claim 12, wherein the small-diameter section has a constant diameter along the axis of the pivot shaft and protrudes from the bearing portion.

5 15. The wiper pivot unit according to claim 12, wherein the pivot shaft further has a fixing section for fixing the wiper arm at the distal end side than the small-diameter section, wherein the small-diameter section is formed over a predetermined length between the fixing section and the large-diameter section.

10 16. The wiper pivot unit according to claim 12, wherein the pivot shaft has a tapered surface, which connects the large-diameter section and the small-diameter section.

15 17. The wiper pivot unit according to claim 16, wherein (the fixing section^{MAB}) has a tapered rotation preventing portion having a knurled surface and a threaded portion formed on the distal end side of the rotation preventing portion.

20 18. The wiper pivot unit according to claim 12, wherein the diameter of the small-diameter section, the diameter of the large-diameter section and the inside diameter of the through hole of the toothed washer before it is fitted to the large-diameter section are designed to produce a kinetic frictional force of zero when the toothed washer is shifted to the small-diameter section.

25 19. The wiper pivot unit according to claim 12,

wherein the locking member includes a toothed washer having a plurality of locking pieces protruding inward, wherein the washer has an unsevered ring shape.

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